

Attorney's Docket 011765-0302011
Client Reference: MHL/MFG/P9308US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Initial PATENT APPLICATION of:
IAN DAVID JOHNSON ET AL.

Confirmation Number: 4017

Application No.: 09/826,801

Group Art Unit: 2664

Filed: April 5, 2001

Examiner: Ho, Chuong T.

For: Data Switching Arbitration Arrangements

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT/RESPONSE TRANSMITTAL

Transmitted herewith is an amendment/response for this application.

FEES

The fee for claims and extension of time (37 C.F.R. 1.16 and 1.17) has been calculated as shown below:

CLAIMS		REMAINING HIGHEST NO.		PRESENT EXTRA	RATE	ADDIT. FEE
AFTER AMENDMENT	PREVIOUSLY PAID FOR					
TOTAL	8	-	20	= 0	\$ 18.00	= \$ 0.00
INDEP.	2	-	3	= 0	\$ 88.00	= \$ 0.00
FIRST PRESENTATION OF MULTIPLE DEP.				+		
CLAIM					\$ 300.00	= \$ 0.00
TOTAL ADDITIONAL CLAIM FEE						\$ 0.00
GRAND TOTAL						\$ 0.00

FEE PAYMENT

Authorization is hereby made to charge the amount of \$0.00 to Deposit Account No. 033975. Charge any additional fees required by this paper or credit any overpayment in the manner authorized above. A duplicate of this paper is attached.

Date: January 4, 2005
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JAN 04 2005

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Title: DATA SWITCHING ARBITRATION ARRANGEMENTS

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated October 5, 2004, please reconsider the patentability of the pending claims based on the following remarks. Applicants note, preliminarily, that claims 2-6 and 8 have been deemed to include allowable subject matter but were objected to for depending on rejected base claims; however, Applicants delay rewriting those claims in independent form at this time to afford the Office the opportunity to fully reconsider the patentability of the rejected base claims based on the following remarks.

The Office Action rejected claims 1 and 7 under 35 U.S.C. 103 as being obvious from Lau (U.S. 6,625,121) and Chen et al. (U.S. 5,544,332; hereafter "Chen"). Applicants traverse the rejection because the combined teachings of Lau and Chen fail to disclose, teach or suggest all the features recited in the rejected claims and would not have been motivated to combine the teachings of those references to provide the claimed invention.

CITED PRIOR ART FAILS TO DISCLOSE, TEACH OR SUGGEST CLAIM FEATURES

The cited prior art fails to disclose, teach or suggest the claimed masking unit for use in a data packet switching system having a memory-less cross-bar switch for providing connections between a plurality of ingress routers and a plurality of egress routers depending on the desired destinations of data packets received at one or more of the ingress routers, as

recited in independent claim 1. Similarly, the cited prior art fails to disclose, teach or suggest the claimed method of controlling a data packet switching system, the method comprising randomly selecting switch connection requests and masking these from a switch control arbiter, as recited in independent claim 7.

The Office Action recognized that Lau fails to disclose, teach or suggest use of a masking unit for randomly masking connection requests or method of control. However, the Office Action asserted that Chen discloses this feature by disclosing a masking unit arranged to randomly mask connection requests. The Office Action further asserted that one of ordinary skill in the art would have found it obvious to modify the system of Lau based on Chen to randomly mask connection requests “to provide one of the line cards an opportunity to access the [egress line cards] and avoid the deadlock situation.”

However, Chen fails to disclose, teach or suggest random masking of connection requests. In fact, Chen merely relates to a deadlock detection and masking system incorporated into a bus coupler intercoupling at least two buses. Chen recognized that it is possible that potential arbitration deadlock conditions will occur between two master devices if each seeks control of a bus and access to a common slave. Thus, Chen’s bus coupler includes an arbiter coupled to the buses to determine which master device may control each bus. A random time delay is introduced by the arbiter to provide the first master device with the opportunity to re-access the slave device and avoid the deadlock situation. Therefore, Chen merely discloses a method of deadlock resolution which holds off bus requests for random periods. (see, Chen, column 4, lines 21 to 32) By providing a random masking period, the complementary synchronized timing of the arbitration deadlock condition between the first and second masters is avoided.

However, Chen fails to disclose, teach or suggest a masking unit or method that randomly masks connection requests. Rather, Chen merely prohibits a master from gaining control of a bus for a random period of time, which is entirely different from the claimed invention, in which connection requests are randomly masked to optimize bandwidth allocation. In Chen, the randomization mechanism actually enables deadlock breaking. Thus, even if a skilled person were to have combined the teachings of Lau and Chen, the result would not have included the claimed masking unit or method of controlling a data packet switching system.

Therefore, claims 1 and 7 are patentable over the combined teachings of Lau and Chen.

INADEQUATE MOTIVATION TO COMBINE THE CITED REFERENCES

Moreover, Applicants traverse the prior art rejection because, contrary to the assertions of the Office Action, one of ordinary skill in the art would not have combined the teachings of Lau and Chen.

Applicants have recognized that conventional use of VOQs for buffering data packets can lead to certain problems including switch congestion when, for example, data packets from two or more of the ingress routers are destined for the same egress router. This problem is solved by the claimed invention by the provision of a masking unit arranged to receive switch connection requests and to randomly mask connection requests. By randomly masking the connection requests, a bandwidth allocation mechanism is established that allows the egress bandwidth to be randomly preferentially allocated to the data stream emanating from a particular ingress router so that it appears unimpeded by the data streams emanating from other ingress routers.

To the contrary, Lau relates merely to an apparatus and method for reducing congestion in a network switching node. Further, Chen differs from both Lau and the claimed invention by relating only to a method for preventing deadlock in a multi-bus computer system. Thus, the teachings of Lau and Chen are of fundamentally different technical areas from each other and the claimed invention. Accordingly, Applicants submit that the teachings of Lau and Chen are non-analogous. Thus, one of ordinary skill in the art would not have looked to the teachings of Chen to improve operation of the technology disclosed in Lau.

“In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” MPEP 2141.01(a) referring to *In re Oetiker*, 977 F.2d 1443, 1446. However, where the general scope of a reference is outside the pertinent field of endeavor, as in the present situation, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved. Because both Chen and Lau are directed to different problems than the claimed invention, and, in fact, different problems than each other, one of ordinary skill would not have looked to those references to combine them to provide Applicants’ claimed invention.

Therefore, claims 1 and 7 are patentable over the combined teachings of Lau and Chen.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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